

*AMENDMENTS TO THE SPECIFICATION*

Replace paragraph [0001] with:

The invention relates to a system for guiding a vehicle along at least one guiding rail, having a rolling surface and at least one side surface of which constitutes a guiding surface, of the type which has a guiding roller device configured ~~so as~~ to cooperate with ~~said the~~ rolling surface and ~~said the~~ side surface and having a rolling bearing part intended for being in rolling contact by its peripheral surface with the upper rolling surface of the rail and at least one side part capable of coming into contact with the side surface of the rail facing it.

Before paragraph [0002] insert as a heading:

Background

Replace paragraph [0002] with:

Systems of this type are already known. These systems are suitable for cooperating with one or two rails, and their roller device has a rolling bearing surface and at least one side part in the form of a flange which is rotationally connected with the bearing part, ~~projecting radially~~ projects radially towards the exterior, and comes in contact with the guiding surface of the rail.

Before paragraph [0005] insert as a heading:

Summary of the Invention

Replace paragraph [0005] with:

To attain this objective, in the roller device according to the invention ~~is characterized by the fact that~~ the rolling part and the side part are configured such that the side part, at its point of contact with the rail, has the same speed as the central part at the site of its rolling surface on the rail.

Replace paragraph [0006] with:

According to one characteristic of the invention, the roller device has at least one rolling support roller and at least one side roller forming ~~said the~~ side part and of which the diameter and shape of the side surface intended for coming into contact with the rail are chosen such that the side roller, at its point of contact with the rail, has the same speed as the central support roller at the site of its rolling surface on the rail.

Before paragraph [0019] insert as a heading:

Brief Description of Drawing Figures

Replace paragraph [0019] with:

The invention will be better understood and other aims, characteristics, details and advantages of it will appear more ~~clear~~ clearly in the course of the following description that references the appended drawings, which are given by way of example to illustrate several embodiments of the invention and in which:

Before paragraph [0035] insert as a heading:

Detailed Description

Replace paragraph [0037] with:

Provided at the end of each axle is pivoting lever 16 with two arms 17, 18, the pivot pin of which is supported by the axle and contains, at the site of the pivot pin but oriented perpendicularly, the axis of rotation of wheel 12. Thus, lever 16 forms a triangle of orientation of the wheel. As Figure 1 clearly shows, connecting rod 19 is inserted between front end 21 of support frame 7 and the free end of one of the arms, in the present case arm 17, of guiding triangle 16. Connecting rod 19 extends parallel to axle 11. Another connecting rod 22 interconnects the free ends of the other two arms 18 of the two guiding triangles 16.

Replace paragraph [0038] with:

It is easily understood that any change in orientation of the rail, such as a curvature of rail 2, is transmitted by roller device 1 to arm 5 and brings about a pivoting of the latter about its vertical shaft 8, which leads to a change in orientation of wheels ~~9~~ 12 by the intermediary connecting rods 19, 22 and guiding triangles 16.

Replace paragraph [0043] with:

According to an essential characteristic of the invention, annular contact surfaces 51, 52 are convex and advantageously have, according to the radial section in Figure 2, an arc shape, which is diagrammatically indicated with broken lines. Consequently, the contact between surfaces 51, 52 of the rollers and side surfaces 46, 47 is essentially a pin-point and therefore frictionless contact. In the figure, the pin-point contact area of convex surface 52 of roller 26 with side surface 47 of rail head 42 is designated by 54. Furthermore, the radial distance between the axes of inclined arm parts 30, 31 and the areas of contact, such as area 54 of convex surfaces 51, 52 of rollers 25, 26, is equal to the radial separation between the axis of middle part 29 and peripheral rolling surface 49 of central roller 24.

Replace paragraph [0052] with:

In this embodiment, side rollers 25, 26 can be rotationally connected with central roller 24 and extend in a plane parallel to the plane of the central roller. In other words, the rollers are no longer inclined as in the first embodiment. Consequently, shaft 28 is a straight shaft. By making side contact surfaces 51, 52 of the side rollers come into contact with contact surfaces 77, 78 of rail head 42 at the bottom 76 of the rail, the distances of the contact points 54 from the axis of the side rollers is identical to the distance of rolling surface 80 of the central roller from its axis of rotation, which has the consequence that the speeds of the side rollers at their contact point 54 and of the central roller at the site of its rolling surface ~~78~~ 80 are identical.

Replace paragraph [0054] with:

Figure 9 illustrates a possibility for performing the synchronization also by gearing of the inclined rollers. For this purpose, rack rings 57, 58 are mounted, constituting bevel gears on the internal side surfaces of side rollers 25, 26 so that in case of the presence of a resistance to the rotation of a ring greater than a threshold value, ~~said~~ the ring can slide over its support surface. For this purpose, as Figure 9 shows, bevel gear 57 has axial annular extension 92 on which annular part 93, made of bronze, for example, which has an L-shaped cross section, is fastened by ~~means of~~ screw 94. Free limb 95 of part 93 is pressed against side support surface 96 of roller 25 by spring element 98 produced, in the example represented, as a torus made of elastomer, with insertion of a washer 99, spring element 98 being housed in connected annular part 100. This part has a cross section in the shape of an L, one limb of which is attached on support surface 96 of the roller, while the edge of the other limb is curved so as to form groove 101 for housing of spring element 98.

Replace paragraph [0056] with:

In this embodiment, side rollers 25, 26 are independent of roller 24 but are mounted so as to rotate on shaft parts 30, 31, which are parallel to shaft part 28, for support of the central roller. This roller device is suitable for rolling on rail head 42 whose rolling surface is planar as in the case of Figure 2. In contrast, the side surfaces by which the side rollers are intended to come into contact with the rail are inclined in the manner represented in Figure 7 and therefore bear the references 77 and 78. So that the rotation speeds of the rollers at points of contact 54 with rail head 42 can be identical to the rotation speed at the site of peripheral rolling surface 49 of central roller 24, on one hand, and so that the rotational synchronization of side rollers 25, 26 on central roller 24 can be ensured, on the other hand, the axes of rotation of the side rollers are offset from the axis of rotation of the central roller, and the latter has a toothed ring 104, 105 on each side on its periphery, which meshes with inwardly-toothed ring 106, 107 associated with side rollers 25, 26. Toothed rings 104, 105 of the central roller, on one hand, and rings 106, 107 of the side rollers, on the other hand, are not concentric and mesh with one

another on the side of rail 2 with a certain speed-reducing ratio. So as to ensure a certain flexibility of the rotational synchronization of the rollers, each of rings 106, 107 is mounted on its roller via two plates 109, made of bronze, for example, in such a way as to obtain a connection by friction between the roller and the ring.

Replace paragraph [0078] with:

Given that each of hubs 198 is connected to shaft 192, when side roller 189 or 190 comes in contact with the rail, the side roller rotates around shaft 200. This rotation makes it possible to detach friction ring ~~11~~ 202 from central roller ~~15~~ 188. Thus, the side roller in contact is no longer synchronized with the central roller but rather with the rail.